High IP3

Frequency Mixer

TUF-18DHSM+

Level 17 (LO Power +17 dBm) 100 to 1800 MHz

Generic photo used for illustration purposes only

CASE STYLE: NNN150

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

Permanent damage may occur if any of these limits are exceeded.

Features

- low conversion loss, 7.3 dB typ.
- excellent L-R isolation, 41 dB typ.
- high IP3, 27 dBm typ.
- wideband, 100 to 1800 MHz
- rugged welded construction

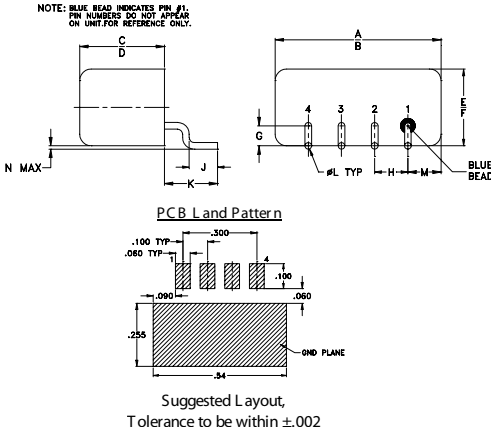
Applications

- airphone
- cellular
- PCS
- PCN

Pin Connections

LO	4
RF	1
IF	2
GROUND	3
CASE GROUND	3

Outline Drawing



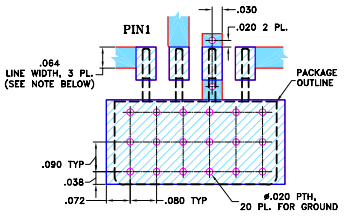
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.50	.48	.255	.240	.23	.21	.06
12.70	12.19	6.48	6.10	5.84	5.33	1.52

H	J	K	L	M	N	wt
.100	.09	.16	.020	.09	.005	grams
2.54	2.29	4.06	0.51	2.29	0.13	1.9

Demo Board MCL PIN : TB-201
Suggested PCB Layout (PL-081)



NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2.BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications

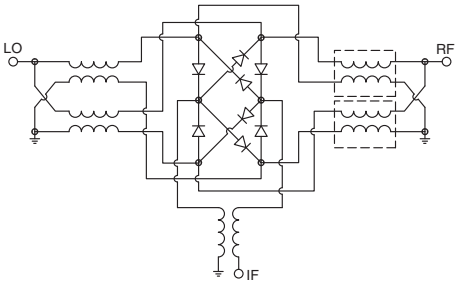
FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 @ CENTER BAND (dBm)
LO/RF	IF	Mid-Band m			Total Range					
f_L-f_U		$\overline{X}$	σ	Max.	Max.	Typ.	Min.	Typ.	Min.	Typ.
100-1800	50-750	7.3	0.15	8.5	9.0	41	23	33	20	27

1 dB COMP.: +10 dBm typ. m= mid band [$2f_L$ to $f_U/2$]

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
100.00	130.00	7.20	48.50	35.20	2.27	1.15
230.77	260.77	7.23	51.20	35.80	2.23	1.11
300.00	330.00	7.08	52.30	36.30	2.25	1.16
361.54	391.54	7.12	50.40	36.90	1.89	1.18
492.31	522.31	7.10	48.70	36.00	1.92	1.29
500.00	530.00	7.09	48.50	36.00	1.84	1.28
600.00	630.00	7.11	48.10	34.80	1.61	1.28
623.08	653.08	7.07	47.50	34.70	1.52	1.30
700.00	730.00	7.06	46.20	33.60	1.44	1.36
753.85	783.85	7.07	45.90	32.80	1.56	1.38
884.62	914.62	7.09	43.80	31.70	1.27	1.46
1000.00	1030.00	7.04	44.40	30.10	1.22	1.51
1015.39	1045.39	7.03	43.80	30.00	1.25	1.51
1146.15	1176.15	7.23	43.40	29.50	1.32	1.77
1276.92	1306.92	7.31	42.20	28.80	1.68	2.25
1407.69	1437.69	7.34	39.20	29.40	2.30	2.68
1500.00	1530.00	7.38	37.00	29.10	3.57	2.96
1538.46	1568.46	7.38	36.80	28.60	3.57	2.96
1669.23	1699.23	7.39	36.20	28.10	2.92	2.76
1800.00	1830.00	7.83	35.40	28.40	2.76	2.55

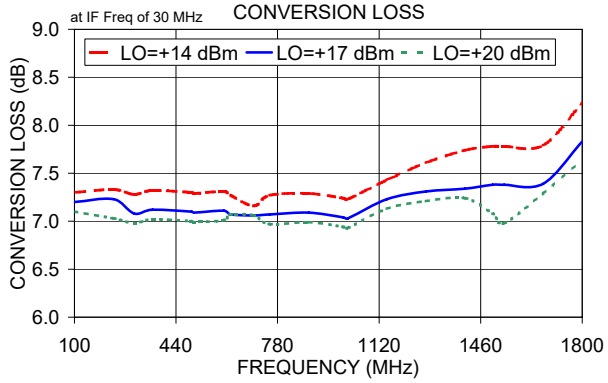
Electrical Schematic



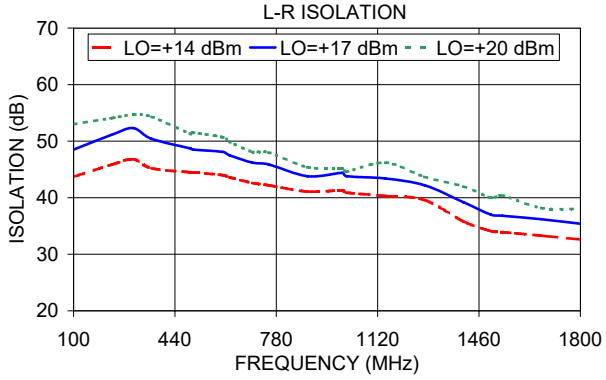
Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

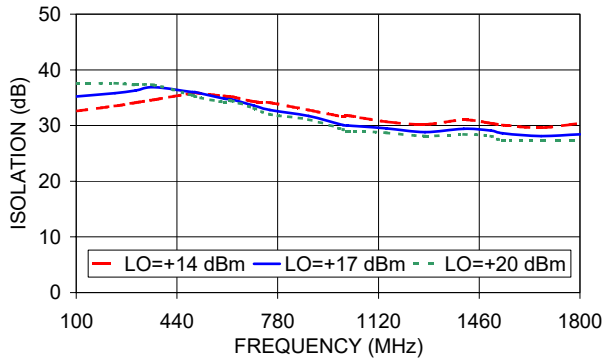
TUF-18DHSM
CONVERSION LOSS
at IF Freq of 30 MHz



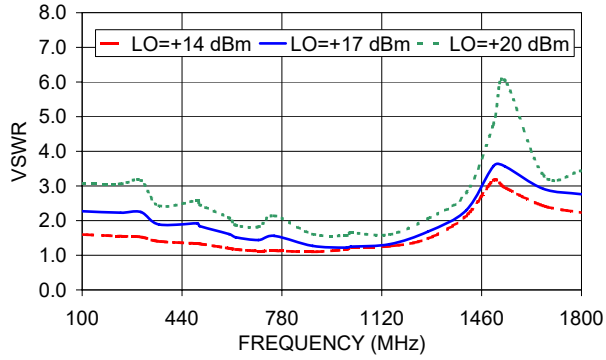
TUF-18DHSM
L-R ISOLATION



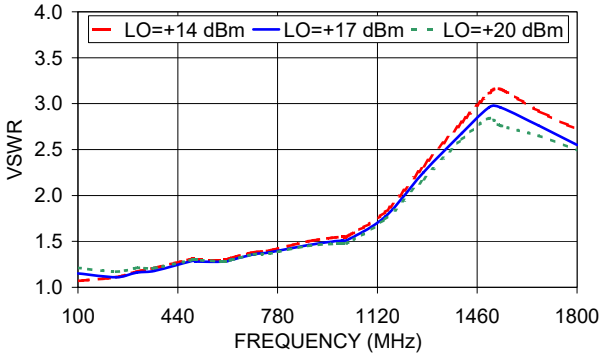
TUF-18DHSM
L-I ISOLATION



TUF-18DHSM
RF VSWR



TUF-18DHSM
LO VSWR



TUF-18DHSM
IF VSWR